

GGAATTCCGT AGTGGGAGGC CGGGCACAGC CTTCCTGTGT GGTTTTACCG CCCAGAGAGC	60
* **	
GTC ATG GAC CTG GGG AAA CCA ATG AAA AGC GTG CTG GTG GTG GCT CTC	108
Met Asp Leu Gly Lys Pro Met Lys Ser Val Leu Val Val Ala Leu	
1 5 10 15	
CTT GTC ATT TTC CAG GTA TGC CTG TGT CAA GAT GAG GTC ACG GAC GAT	156
Leu Val Ile Phe Gln Val Cys Leu Cys Gln Asp Glu Val Thr Asp Asp	
20 25 30	
TAC ATC GGA GAC AAC ACC ACA GTG GAC TAC ACT TTG TTC GAG TCT TTG	204
Tyr Ile Gly Asp Asn Thr Thr Val Asp Tyr Thr Leu Phe Glu Ser Leu	
35 CHO ### ### 40 45	
TGC TCC AAG AAG GAC GTG CGG AAC TTT AAA GCC TGG TTC CTC CCT ATC	252
Cys Ser Lys Lys Asp Val Arg Asn Phe Lys Ala Trp Phe Leu Pro Ile	
50 55 60	
ATG TAC TCC ATC ATT TGT TTC GTG GGC CTA CTG GGC AAT GGG CTG GTC	300
Met Tyr Ser Ile Ile Cys Phe Val Gly Leu Leu Gly Asn Gly Leu Val	
65 70 75	
GTG TTG ACC TAT ATC TAT TTC AAG AGG CTC AAG ACC ATG ACC GAT ACC	348
Val Leu Thr Tyr Ile Tyr Phe Lys Arg Leu Lys Thr Met Thr Asp Thr	
80 85 90 95	
TAC CTG CTC AAC CTG GCG GTG GCA GAC ATC CTC TTC CTC CTG ACC CTT	396
Tyr Leu Leu Asn Leu Ala Val Ala Asp Ile Leu Phe Leu Leu Thr Leu	
100 105 110	
CCC TTC TGG GCC TAC AGC GCG GCC AAG TCC TGG GTC TTC GGT GTC CAC	444
Pro Phe Trp Ala Tyr Ser Ala Ala Lys Ser Trp Val Phe Gly Val His	
115 120 125	
TTT TGC AAG CTC ATC TTT GCC ATC TAC AAG ATG AGC TTC TTC AGT GGC	492
Phe Cys Lys Leu Ile Phe Ala Ile Tyr Lys Met Ser Phe Phe Ser Gly	
130 135 140	
ATG CTC CTA CTT CTT TGC ATC AGC ATT GAC CGC TAC GTG GCC ATC GTC	540
Met Leu Leu Leu Leu Cys Ile Ser Ile Asp Arg Tyr Val Ala Ile Val	
145 150 155	

FIG.1A-1

CAG GCT GTC TCA GCT CAC CGC CAC CGT GCC CGC GTC CTT CTC ATC AGC Gln Ala Val Ser Ala His Arg His Arg Ala Arg Val Leu Leu Ile Ser 160 165 170 175	588
AAG CTG TCC TGT GTG GGC AGC GCC ATA CTA GCC ACA GTG CTC TCC ATC Lys Leu Ser Cys Val Gly Ser Ala Ile Leu Ala Thr Val Leu Ser Ile 180 185 190	636
CCA GAG CTC CTG TAC AGT GAC CTC CAG AGG AGC AGC AGT GAG CAA GCG Pro Glu Leu Leu Tyr Ser Asp Leu Gln Arg Ser Ser Ser Glu Gln Ala 195 200 205	684
ATG CGA TGC TCT CTC ATC ACA GAG CAT GTG GAG GCC TTT ATC ACC ATC Met Arg Cys Ser Leu Ile Thr Glu His Val Glu Ala Phe Ile Thr Ile 210 215 220	732
CAG GTG GCC CAG ATG GTG ATC GGC TTT CTG GTC CCC CTG CTG GCC ATG Gln Val Ala Gln Met Val Ile Gly Phe Leu Val Pro Leu Leu Ala Met 225 230 235	780
AGC TTC TGT TAC CTT GTC ATC ATC CGC ACC CTG CTC CAG GCA CGC AAC Ser Phe Cys Tyr Leu Val Ile Ile Arg Thr Leu Leu Gln Ala Arg Asn 240 245 250 255	828
TTT GAG CGC AAC AAG GCC ATC AAG GTG ATC ATC GCT GTG GTC GTG GTC Phe Glu Arg Asn Lys Ala Ile Lys Val Ile Ile Ala Val Val Val Val 260 265 270	876
TTC ATA GTC TTC CAG CTG CCC TAC AAT GGG GTG GTC CTG GCC CAG ACG Phe Ile Val Phe Gln Leu Pro Tyr Asn Gly Val Val Leu Ala Gln Thr 275 280 285	924
GTG GCC AAC TTC AAC ATC ACC AGT AGC ACC TGT GAG CTC AGT AAG CAA Val Ala Asn Phe Asn Ile Thr Ser Ser Thr Cys Glu Leu Ser Lys Gln 290 CHO ### ### 295 300	972
CTC AAC ATC GCC TAC GAC GTC ACC TAC AGC CTG GCC TGC GTC CGC TGC Leu Asn Ile Ala Tyr Asp Val Thr Tyr Ser Leu Ala Cys Val Arg Cys 305 310 315	1020

FIG.1A-2

TGC GTC AAC CCT TTC TTG TAC GCC TTC ATC GGC GTC AAG TTC CGC AAC	1068
Cys Val Asn Pro Phe Leu Tyr Ala Phe Ile Gly Val Lys Phe Arg Asn	
320 325 330 335	
GAT ATC TTC AAG CTC TTC AAG GAC CTG GGC TGC CTC AGC CAG GAG CAG	1116
Asp Ile Phe Lys Leu Phe Lys Asp Leu Gly Cys Leu Ser Gln Glu Gln	
340 345 350	
CTC CGG CAG TGG TCT TCC TGT CGG CAC ATC CGG CGC TCC TCC ATG AGT	1164
Leu Arg Gln Trp Ser Ser Cys Arg His Ile Arg Arg Ser Ser Met Ser	
355 360 365	
GTG GAG GCC GAG ACC ACC ACC ACC TTC TCC CCA TAGGCGACTC TTCTGCCTGG	1217
Val Glu Ala Glu Thr Thr Thr Thr Phe Ser Pro ***	
370 375	
ACTAGAGGGA CCTCTCCCAG GGTCCCTGGG GTGGGGATAG GGAGCAGATG CAATGACTCA	1277
GGACATCCCC CCGCCAAAAG CTGCTCAGGG GAAAAAGCAG CTCTCCCCTC AGAGTGCAAG	1337
CCCCTGCTCC AGAAGATAGC TTCACCCCAA TCCCAGCTAC CTCAACCAAT GCCAAAAAAA	1397
GACAGGGCTG ATAAGCTAAC ACCAGACAGA CAACACTGGG AAACAGAGGC TATTGTCCCC	1457
TAAACCAAAA ACTGAAAGTG AAAGTCCAGA AACTGTTCCT ACCTGCTGGA GTGAAGGGGC	1517
CAAGCAGGGT GAGTGCAAGG GCGGTGGGAG TGGCCTGAAG AGTCCTCTGA ATGAACCTTC	1577
TGGCCTCCCA CAGACTCAAA TGCTCAGACC AGCTCTTCCG AAAACCAGGC CTTATCTCCA	1637
AGACCAGAGA TAGTGGGGAG ACTTCTTGGC TTGGTGAGGA AAAGCGGACA TCAGCTGGTC	1697
AAACAAACTC TCTGAACCCC TCCCTCCATC GTTTTCTTCA CTGTCTCCA AGCCAGCGGG	1757
AATGGCAGCT GCCACGCCGC CCTAAAAGCA CACTCATCCC CTCACTTGCC GCGTCGCCCT	1817
CCCAGGCTCT CAACAGGGGA GAGTGTGGTG TTTCTGCAG GCCAGGCCAG CTGCCTCCGC	1877
GTGATCAAAG CCACACTCTG GGCTCCAGAG TGGGGATGAC ATGCACTCAG CTCTTGGCTC	1937

FIG.1A-3

CACTGGGATG GGAGGAGAGG ACAAGGGAAA TGTCAGGGGC GGGGAGGGTG ACAGTGGCCG	1997
CCCAAGGCCA CGAGCTTGTT CTTTGTTCIT TGTCACAGGG ACTGAAAACC TCTCCTCATG	2057
TTCTGCTTTC GATTCGTAA GAGAGCAACA TTTTACCCAC ACACAGATAA AGTTTTCCCT	2117
TGAGGAAACA ACAGCTTTAA AAAAAAAAAA GGAATTC	2154

FIG.1A-4

GGAATTCCT GATATACACC TGGACCACCA CCA ATG GAT ATA CAA ATG GCA AAC 54

* **

Met Asp Ile Gln Met Ala Asn

1

5

AAT TTT ACT CCG CCC TCT GCA ACT CCT CAG GGA AAT GAC TGT GAC CTC 102

Asn Phe Thr Pro Pro Ser Ala Thr Pro Gln Gly Asn Asp Cys Asp Leu

CHO ### ###

10

15

20

TAT GCA CAT CAC AGC ACG GCC AGG ATA GTA ATG CCT CTG CAT TAC AGC 150

Tyr Ala His His Ser Thr Ala Arg Ile Val Met Pro Leu His Tyr Ser

25

30

35

CTC GTC TTC ATC ATT GGG CTC GTG GGA AAC TTA CTA GCC TTG GTC GTC 198

Leu Val Phe Ile Ile Gly Leu Val Gly Asn Leu Leu Ala Leu Val Val

40

45

50

55

ATT GTT CAA AAC AGG AAA AAA ATC AAC TCT ACC ACC CTC TAT TCA ACA 246

Ile Val Gln Asn Arg Lys Lys Ile Asn Ser Thr Thr Leu Tyr Ser Thr

60

65

70

AAT TTG GTG ATT TCT GAT ATA CTT TTT ACC ACG GCT TTG CCT ACA CGA 294

Asn Leu Val Ile Ser Asp Ile Leu Phe Thr Thr Ala Leu Pro Thr Arg

75

80

85

ATA GCC TAC TAT GCA ATG GGC TTT GAC TGG AGA ATC GGA GAT GCC TTG 342

Ile Ala Tyr Tyr Ala Met Gly Phe Asp Trp Arg Ile Gly Asp Ala Leu

90

95

100

TGT AGG ATA ACT GCG CTA GTG TTT TAC ATC AAC ACA TAT GCA GGT GTG 390

Cys Arg Ile Thr Ala Leu Val Phe Tyr Ile Asn Thr Tyr Ala Gly Val

105

110

115

FIG.1B-1

AAC TTT ATG ACC TGC CTG AGT ATT GAC CGC TTC ATT GCT GTG GTG CAC 438

Asn Phe Met Thr Cys Leu Ser Ile Asp Arg Phe Ile Ala Val Val His

120 125 130 135

CCT CTA CGC TAC AAC AAG ATA AAA AGG ATT GAA CAT GCA AAA GGC GTG 486

Pro Leu Arg Tyr Asn Lys Ile Lys Arg Ile Glu His Ala Lys Gly Val

140 145 150

TGC ATA TTT GTC TGG ATT CTA GTA TTT GCT CAG ACA CTC CCA CTC CTC 534

Cys Ile Phe Val Trp Ile Leu Val Phe Ala Gln Thr Leu Pro Leu Leu

155 160 165

ATC AAC CCT ATG TCA AAG CAG GAG GCT GAA AGG ATT ACA TGC ATG GAG 582

Ile Asn Pro Met Ser Lys Gln Glu Ala Glu Arg Ile Thr Cys Met Glu

170 175 180

TAT CCA AAC TTT GAA GAA ACT AAA TCT CTT CCC TGG ATT CTG CTT GGG 630

Tyr Pro Asn Phe Glu Glu Thr Lys Ser Leu Pro Trp Ile Leu Leu Gly

185 190 195

GCA TGT TTC ATA GGA TAT GTA CTT CCA CTT ATA ATC ATT CTC ATC TGC 678

Ala Cys Phe Ile Gly Tyr Val Leu Pro Leu Ile Ile Ile Leu Ile Cys

200 205 210 215

TAT TCT CAG ATC TGC TGC AAA CTC TTC AGA ACT GCC AAA CAA AAC CCA 726

Tyr Ser Gln Ile Cys Cys Lys Leu Phe Arg Thr Ala Lys Gln Asn Pro

220 225 230

CTC ACT GAG AAA TCT GGT GTA AAC AAA AAG GCT CTC AAC ACA ATT ATT 774

Leu Thr Glu Lys Ser Gly Val Asn Lys Lys Ala Leu Asn Thr Ile Ile

235 240 245

CTT ATT ATT GTT GTG TTT GTT CTC TGT TTC ACA CCT TAC CAT GTT GCA 822

Leu Ile Ile Val Val Phe Val Leu Cys Phe Thr Pro Tyr His Val Ala

250 255 260

FIG.1B-2

ATT ATT CAA CAT ATG ATT AAG AAG CTT CGT TTC TCT AAT TTC CTG GAA 870
Ile Ile Gln His Met Ile Lys Lys Leu Arg Phe Ser Asn Phe Leu Glu
 265 270 275

TGT AGC CAA AGA CAT TCG TTC CAG ATT TCT CTG CAC TTT ACA GTA TGC 918
 Cys Ser Gln Arg His Ser Phe Gln Ile Ser Leu His Phe Thr Val Cys
 280 285 290 295

CTG ATG AAC TTC AAT TGC TGC ATG GAC CCT TTT ATC TAC TTC TTT GCA 966
Leu Met Asn Phe Asn Cys Cys Met Asp Pro Phe Ile Tyr Phe Phe Ala
 300 305 310

TGT AAA GCG TAT AAG AGA AAG GTT ATG AGG ATG CTG AAA CGG CAA GTC 1014
Cys Lys Gly Tyr Lys Arg Lys Val Met Arg Met Leu Lys Arg Gln Val
 315 320 325

AGT GTA TCG ATT TCT AGT GCT GTG AAG TCA GCC CCT GAA GAA AAT TCA 1062
 Ser Val Ser Ile Ser Ser Ala Val Lys Ser Ala Pro Glu Glu Asn Ser
 330 335 340

CGT GAA ATG ACA GAA ACG CAG ATG ATG ATA CAT TCC AAG TCT TCA AAT 1110
 Arg Glu Met Thr Glu Thr Gln Met Met Ile His Ser Lys Ser Ser Asn
 345 350 355

GGA AAG TGAATCGAT TGTATTTTGG TTTATAGTGA CGTAAACTGT ATGACAAACT 1166
 Gly Lys ***
 360

TTGCAGGACT TCCCTTATAA AGCAAAATAA TTGTTGAGCT TCCAATTAGT ATTCTTTTAT 1226

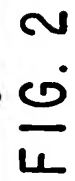
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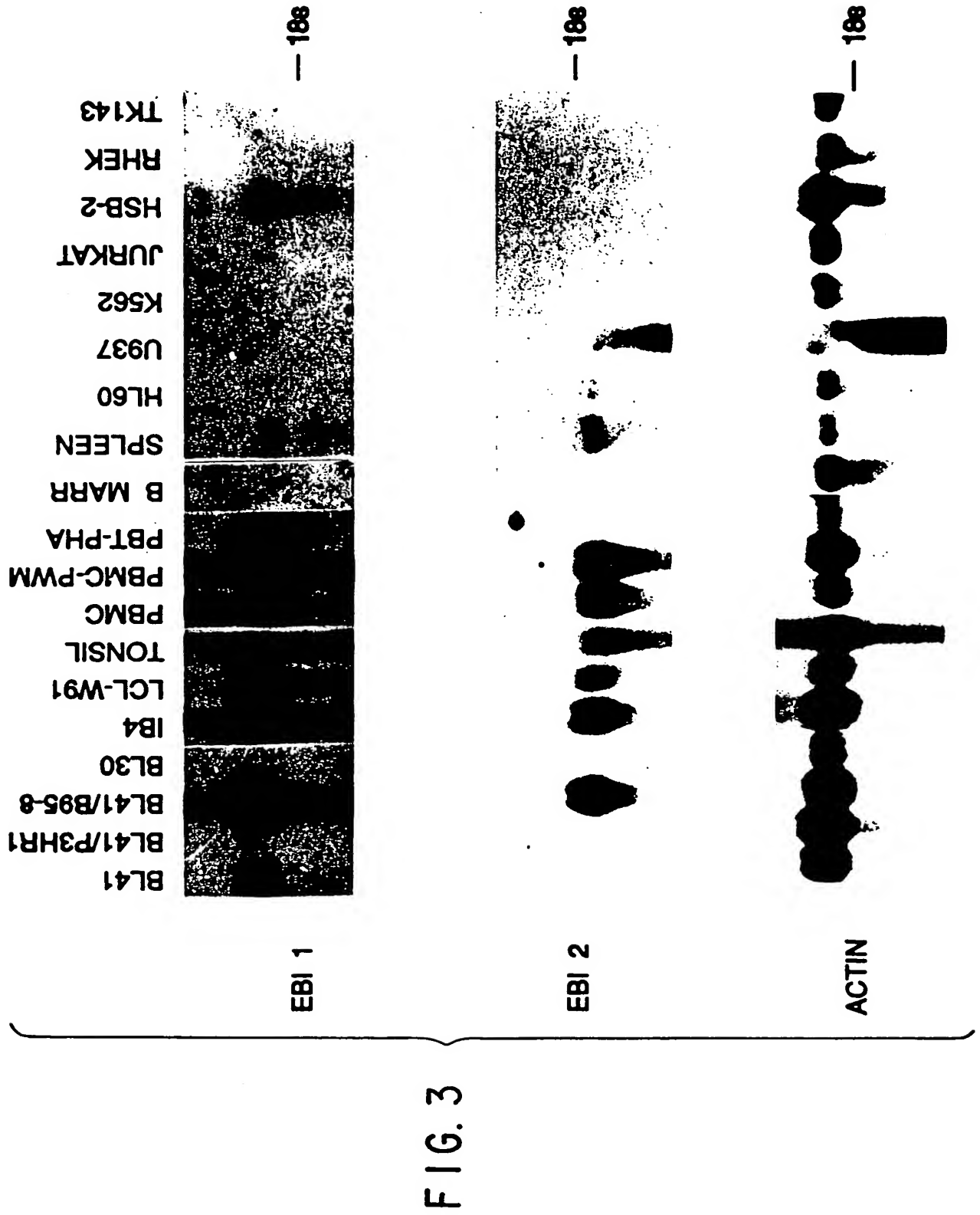
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FIG.1B-3

ACGAATACAC CAAAAGGAGG CGCTCTTAAT AACTCCCAAT GTAAAAAGTT TTGTTTTAAT 1406
AAAAAATTAA TTATTATTCT TGCCAACAAA TGGCTAGAAA GGAAGAATA GATTATATAT 1466
TGCCAGATGT TAATACTGTA ACATACTTTT TAAATAACAT ATTTCTTAAA TCCAAATTTT 1526
TCTCAATGTT AGATTTAATT CCCTCAATAA CACCAATGTT TTGTTTTGTT TCGTCTGGG 1586
TCATAAACT TTGTTAAGGA ACTCTTTTGG AATAAAGAGC AGGATGCTGC GGAATTC 1643

FIG.1B-4





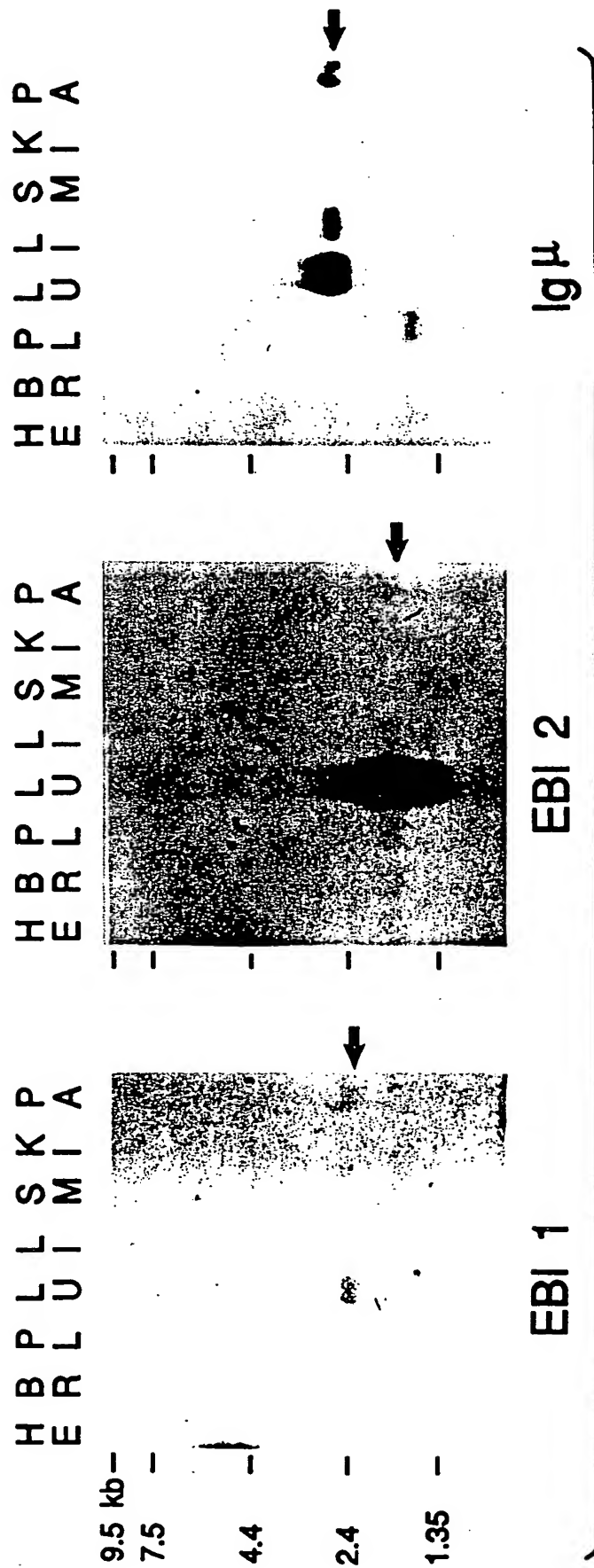


FIG. 4

GAATTCGCA GCC ATG ACC CCG CAG CTT CTC CTG GCC CTT GTC CTC TGG 49

Met Thr Pro Gln Leu Leu Leu Ala Leu Val Leu Trp
 1 5 10

GCC AGC TGC CCG CCC TGC AGT GGA AGG AAA GGG CCC CCA GCA GCT CTG 97

Ala Ser Cys Pro Pro Cys Ser Gly Arg Lys Gly Pro Pro Ala Ala Leu
 15 20 25

ACA CTG CCC CGG GTG CAA TGC CGA GCC TCT CGG TAC CCG ATC GCC GTG 145

Thr Leu Pro Arg Val Gln Cys Arg Ala Ser Arg Tyr Pro Ile Ala Val
 30 35 40

GAT TGC TCC TGG ACC CTG CCG CCT GCT CCA AAC TCC ACC AGC CCC GTG 193

Asp Cys Ser Trp Thr Leu Pro Pro Ala Pro Asn Ser Thr Ser Pro Val
 45 50 55 CHO ### ### 60

TCC TTC ATT GCC ACG TAC AGG CTC GGC ATG GCT GCC CGG GGC CAC AGC 241

Ser Phe Ile Ala Thr Tyr Arg Leu Gly Met Ala Ala Arg Gly His Ser
 65 70 75

TGG CCC TGC CTG CAG CAG ACG CCA ACG TCC ACC AGC TGC ACC ATC AGC 289

Trp Pro Cys Leu Gln Gln Thr Pro Thr Ser Thr Ser Cys Thr Ile Thr
 80 85 90

GAT GTC CAG CTG TTC TCC ATG GCT CCC TAC GTG CTC AAT GTC ACC GCC 337

Asp Val Gln Leu Phe Ser Met Ala Pro Tyr Val Leu Asn Val Thr Ala
 95 100 105 CHO ### ###

GTC CAC CCC TGG GGC TCC AGC AGC AGC TTC GTG CCT TTC ATA ACA GAG 385

Val His Pro Trp Gly Ser Ser Ser Ser Phe Val Pro Phe Ile Thr Glu
 110 115 120

CAC ATC ATC AAG CCC GAC CCT CCA GAA GGC GTG CGC CTA AGC CCC CTC 433

His Ile Ile Lys Pro Asp Pro Pro Glu Gly Val Arg Leu Ser Pro Leu
 125 130 135 140

FIG.5A

GCT GAG CGC CAC GTA CAG GTG CAG TGG GAG CCT CCC GGG TCC TGG CCC	481
Ala Glu Arg His Val Gln Val Gln Trp Glu Pro Pro Gly Ser Trp Pro	
145 150 155	
TTC CCA GAG ATC TTC TCA CTG AAG TAC TGG ATC CGT TAC AAG CGT GAG	529
Phe Pro Glu Ile Phe Ser Leu Lys Tyr Trp Ile Arg Tyr Lys Arg Gln	
160 165 170	
GGA GCT GCG CGC TTC CAC CGG GTG GGG CCC ATT GAA GCC ACG TCC TTC	577
Gly Ala Ala Arg Phe His Arg Val Gly Pro Ile Glu Ala Thr Ser Phe	
175 180 185	
ATC CTC AGG GCT GTG CGG CCC CGA GCC AGG TAC TAC GTC CAA GTG GCG	625
Ile Leu Arg Ala Val Arg Pro Arg Ala Arg Tyr Tyr Val Gln Val Ala	
190 195 200	
GCT CAG GAC CTC ACA GAC TAC GGG GAA CTG AGT GAC TGG AGT CTC CCC	673
Ala Gln Asp Leu Thr Asp Tyr Gly Glu Leu Ser Asp Trp Ser Leu Pro	
205 210 215 220	
GCC ACT GCC ACA ATG AGC CTG GGC AAG TAGCAAGGGC TTCCCGCTGC	720
Ala Thr Ala Thr Met Ser Leu Gly Lys ***	
225	
CTCCAGACAG CACCTGGGTC CTGCCACCC TAAGCCCCGG GACACCTGTT GGAGGGCGGA	780
TGGATCTGC CTAGCCTGGG CTGGAGTCCT TGCTTTGCTG CTGCTGAGCT GCCGGGCAAC	840
CTCAGATGAC CGACTTTTCC CTTTGAGCCT CAGTTTCTCT AGCTGAGAAA TGGAGATGTA	900
CTACTCTCTC CTTTACCTTT ACCTTTACCA CAGTGCAGGG CTGACTGAAC TGTCAGTGTG	960

FIG.5B

AGATATTTTT TATTGTTTAA TTAGAAAAGA ATTGTTGTTG GGCTGGGCGC AGTGGATCGC 1020

ACCTGTAATC CCAGTCACTG GGAAGCCGAC GTGGGTGGGT AGCTTGAGGC CAGGAGCTCG 1080

AAACCAGTCC GGGCCACACA GCAAGACCCC ATCTCTAAAA AATTAATATA AATATAAAAT 1140

AAAAAAAAA AAAAGGAATT C 1161

FIG.5C

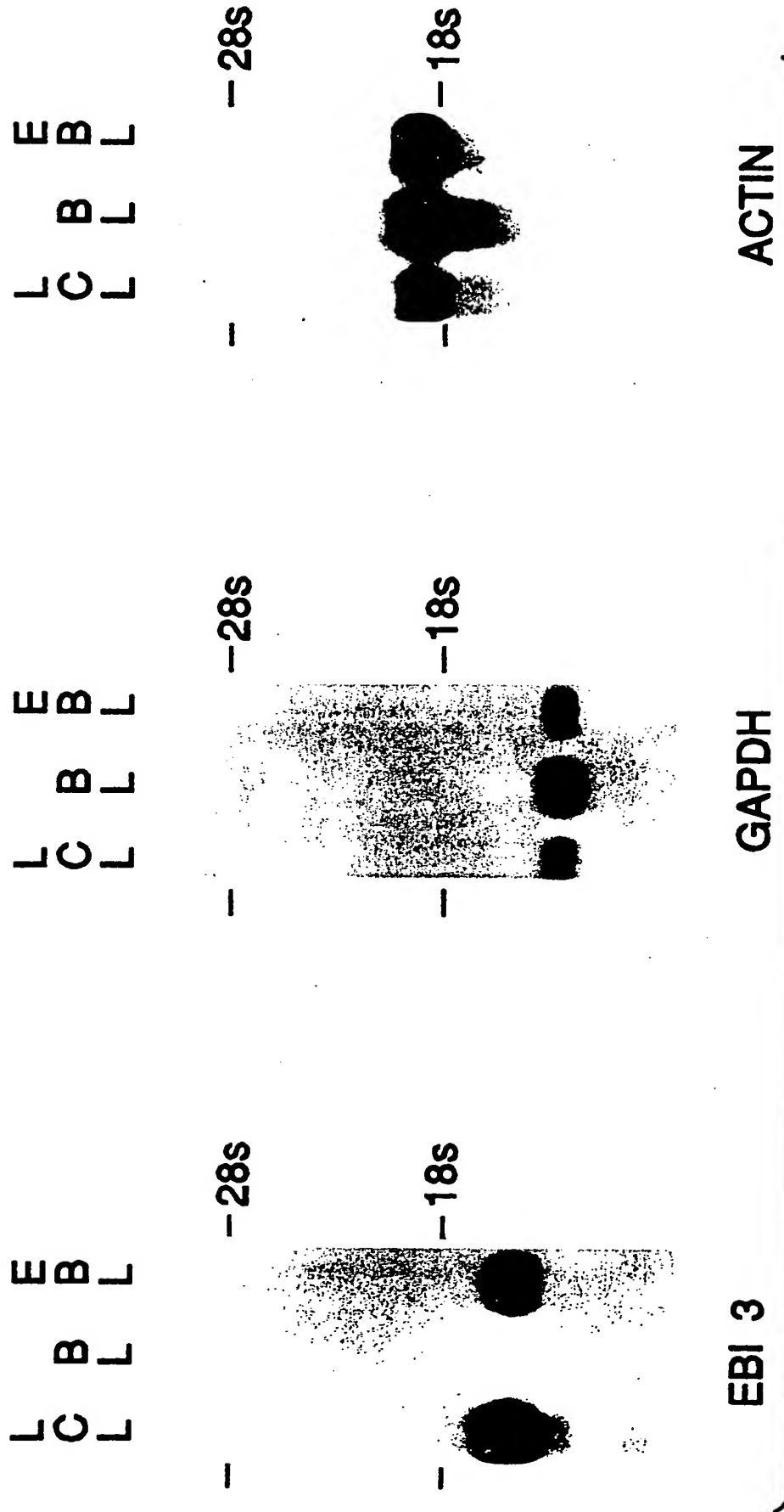


FIG. 6

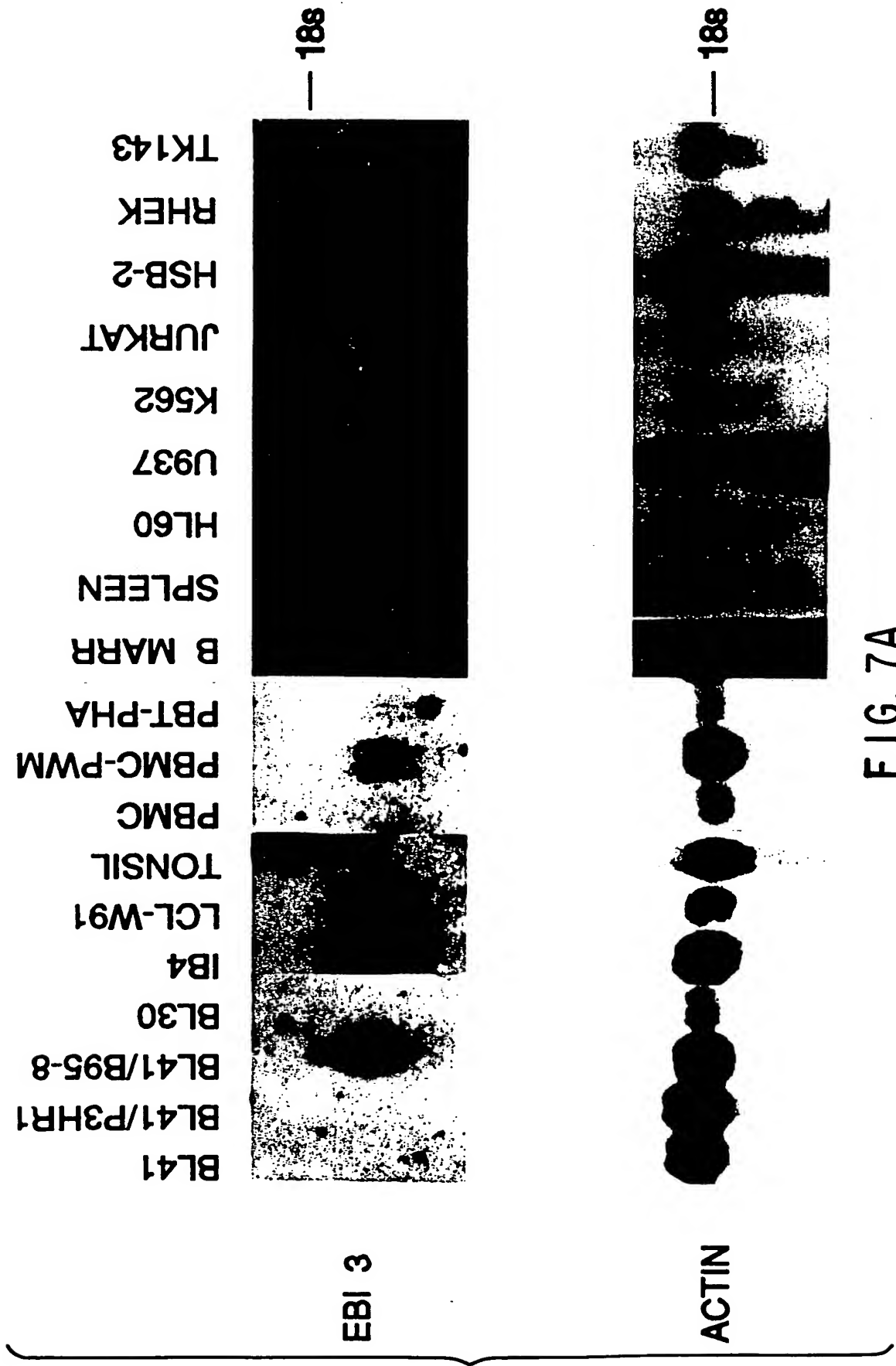


FIG. 7A

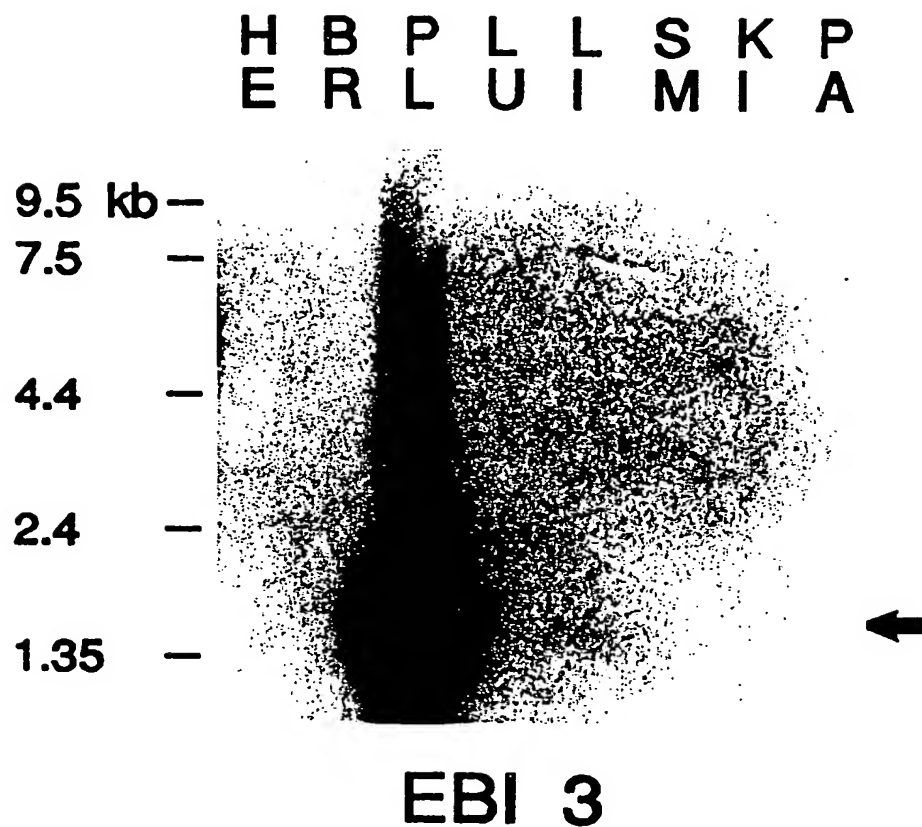


FIG. 7B